

Docket No.: 27373/33638A
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Weichselbaum et al.

Application No.: 09/964,042

Confirmation No.: 1056

Filed: September 26, 2001

Art Unit: 1635

For: Treatment of Tumors with Genetically
Engineered Herpes Virus

Examiner: J. E. Angell

DECLARATION UNDER 37 C.F.R. § 1.132

MS Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

1. I, Bernard Roizman, Sc.D., declare that:
2. I am a named co-inventor, along with Ralph Weichselbaum and Richard Whitley, on the above-identified patent application. I am familiar with the contents of the patent application and make this declaration to provide information that may be relevant to examination of the application. A copy of my *curriculum vitae* is attached as Exhibit 1.
3. I am aware that the Examiner has acknowledged in the current Office Action mailed January 5, 2010 that subject matter would be allowable if the methods were restricted to HSV R7020.
4. HSV R7020 is a multi-mutated HSV having a deletion of one member of an inverted repeat and the genes located therein, as well as deletions in two other genes. More particularly, HSV R7020 lacks all or portions of the U_{L24} and U_{L56} genes, and contains only one of the two copies of the $\alpha 0$, $\alpha 4$, $\gamma 134.5$, ORF-O, and ORF-P genes. In addition, the U_{L23} gene was placed under the control of the $\alpha 4$ promoter. Additionally, the HSV-2 genes U_{S2} , U_{S3} , U_{S4} and U_{S5} , were inserted in place of the deleted inverted repeat sequences. This information is consistent with my understanding and the understanding of one of skill in the art that claims 1 and 22 define HSV R7020.

5. I further declare that HSV NV1020 was created as a plaque purification of HSV R7020 by Dr. Frank Tufaro. The plaque purification did not impose any selective pressure and did not alter the genotype of HSV R7020. Accordingly, HSV R7020 and HSV NV1020 are identical viruses.

6. I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the above-identified application or any patent issuing thereon.

June 2 2010
Date

Bernard Roizman
Bernard Roizman

CURRICULUM VITAE**June, 2008****Personal data:**

Name Bernard Roizman

Work address: The Marjorie B. Kovler Viral Oncology Laboratories, The University of Chicago, 910 East 58th Street Chicago IL 60637.

Home address: 5555 South Everett Ave, Chicago IL 60637

Education:

Temple University, Philadelphia, Pennsylvania 1949-1954, B.A. 1952; M.S. 1954.

The Johns Hopkins University, Baltimore, Maryland 1954-1956; Sc.D. 1956.

Awards and Honors:

Pasteur Award, Illinois Society of Microbiology, 1972; Esther Langer Award, 1974.

Centennial Medal, Institut Pasteur, Paris, France 1987; First annual ICN International Prize in Virology, 1988; Sesquicentennial Gold Medal, University of Ferrara, Italy, 1991; J. Allyn Taylor International Prize in Medicine, 1997; Bristol-Myers Squibb Award for Distinguished Achievement in Infectious Disease Research, 1998; Abbott-ASM Lifetime Achievement Award, 2008.

Elected: Member of the National Academy of Sciences, 1979; Fellow, American Academy of Arts and Sciences, 1991; Fellow, American Academy of Microbiology, 1992; Institute of Medicine, 2001; Fellow, American Association for the Advancement of Science, 2004. Honorary Member, Hungarian Academy of Sciences, 1995, Foreign Member, Chinese Academy of Engineering, 2000.

Honorary degrees: Doctorate in Humane Letters, Governors State University, IL. 1984; Doctorate in Medicine and Surgery. University of Ferrara, Italy 1991; Doctorate in Science, University of Paris, France, 1997; Doctorate in Medicine, Univ. of Valladolid, Spain, 2001; Professor (honoris causa) Shandong Academy of Medical Sciences, China, 1985; Peking Union Medical College, China, 2002, Shandong Univ, 2003; Qingdao Univ. 2003; Jiatong Univ Beijing 2007.

Honorary Fellow, Pan American Cancer Cytology Soc., 1973; Fellow, Japanese Soc. for the Promotion of Science, 1989. Honorary member, Italian Soc. for Virology, 2002.

Outstanding Alumnus in Public Health Award for 1984; Johns Hopkins Univ. Society of Scholars, The Johns Hopkins University, 1988.

Schneerson Visiting Prof., Mount Sinai School of Medicine, New York, N.Y. 1982; Visiting Prof., Univ. of Michigan, 1989; Visiting Prof., Univ. of Bologna, Italy, 1991; Sulkin Visiting Prof. Southwest Med. School 2004; Sackler Fellow, Univ. of Tel Aviv, 1995.

NIH Outstanding Investigator Award 1988-2001; NIH-NCI Merit award, 2003. recipient, Bristol Myers Squibb Unsolicited Research Grant Award in Infectious Diseases, 1991-1995.

Positions Held:**(1). Academic**

Medical Institutions, The Johns Hopkins University: Instructor of Microbiology, 1956-1957; Research Associate of Microbiology, 1957-1958; Assistant Prof. of Microbiology, 1958-1965.

Division of Biological Sciences, The University of Chicago:

Associate Professor of Microbiology, 1965-1969; Professor of Microbiology, 1969-1970; Professor of Microbiology and Biophysics, 1970-1981; Joseph Regenstein Professor of Virology in the Departments of Microbiology and Biophysics & Theoretical Biology 1981-1983; Current: **Joseph Regenstein****Distinguished Service Professor of Virology in the Departments of Molecular Genetics & Cell Biology, Biochemistry & Molecular Biology, and in Microbiology.**

Chairman, Interdepartmental Committee on Virology, 1969-1985; 1987-2001

Chairman, Department of Molecular Genetics and Cell Biology, 1985-88.

(2) Editorial

Member, Editorial Board of Journal of Hygiene, 1958-1961.
 Member, Editorial Board of Journal of Infectious Diseases, 1965-1969.
 Member, Editorial Board of Journal of Virology, 1970 –
 Member, Editorial Board of Intervirology, 1972-1985.
 Advisory Editor for Progress in Surface Membrane Science, 1972
 Member, Editorial Board of Archives of Virology, 1975-1981.
 Member, Editorial Board of Virology, 1976-1978; 1983-
 Member, Editorial Board of Microbiologica, 1978-
 Associate Editor, Cell, 1979-1981.
 Member, Editorial Advisory Board, Antiviral Agents Bulletin, 1988-2002
 Member, Editorial Board, Methods in Molecular Biology, 1988-
 Member, Editorial Advisory Board, Encyclopedia of Virology, 1990-
 Editor-in-Chief, Infectious Agents and Disease, 1991-1996
 Member, Editorial Board of Gene Therapy, 1994-
 Member, Editorial Board, J. of Human Virology 1997-2001
 Member, Editorial Board, Encyclopedia of Molecular Medicine, Wiley, 2001
 Member, Editorial Board, J. of Virological Methods 1999-
 Member, Editorial Board of Acta Pathologic, Microbiologica, et Immunologica Scandinavica 2004-
 Member, Board of Editors, Mt. Sinai Journal of Medicine.

(3) Consultantships, Memberships on National Committees, etc.

A) Grant Review Panels

Member, Special virus Cancer Program, Developmental Research Working Group, National Cancer Institute, National Institutes of Health, 1967-1971.
 Consultant, National Cancer Institute, N.I.H. 1967-1973.
 Member, Steering Committee, Human Cell Program, Cell Biology Division, National Science Foundation, 1971-1974.
 Member, the American Cancer Society Advisory Committee on Cell Biol. and Virol., 1970-74.
 Consultant, National Science Foundation, 1972-1974.
 Member, Medical Advisory Board of the Leukemia Research Foundation, 1972-1977.
 Member, Experimental Virology Study Section, Research Grants Review Branch, National Institutes of Health, 1976-1980.

B) International Organizations

Member, Herpesvirus Study Group, International Committee for the Taxonomy of Viruses, 1971- Chairman, 1971 - 1993
 Member, WHO/FOA Herpesvirus Work-ng Team, 1972-1981.
 Member, International Microbial Genetics Commission, International Association of Microbiological Societies, 1979-1986.
 Member, Subcommittee on Vertebrate Viruses, International Committee for the Taxonomy of Viruses, 1981- Chairman, Scientific Advisory Board, Showa University Research Institute for Biomedicine in Florida, 1983- ; Member, 1991- and Chairman, Board of Directors, 1991-1997.

C) National Organizations

Member, Scientific Advisory Council, New York Cancer Institute, 1971-89.
 Member, External Advisory Committee, Emory University Cancer Center, 1973-81
 Member, Board of Scientific Consultants, Sloan Kettering Institute, 1975-81.
 Member, N.I.A.I.D. Task Force on Virology, 1976-1977.
 Member, Board of Trustees, Goodwin Institute for Cancer Research, 1977-

Member, External Advisory Board, Northwestern Univ. Cancer Center, 1979-88.
 Member, National Institute of Medicine, Committee for Establishing Vaccine 1983-1985.
 Member, Briefing Panel on Prevention and Treatment of Viral Diseases, Office of President's Science Advisor, 1986.
 Chairman, Bristol-Myers Squibb Infectious Disease Award Committee, 1991-1995
 Member, N.I.A.I.D. Blue Ribbon Panel on Bioterrorism and its implications for Biomedical Research, 2002.
 Member, External Scientific Advisory Board, Malaria Research Institute, Johns Hopkins University School of Public Health, 2002-

D. Industrial Organizations

Consultant, Abbott laboratories, 1987-2000;
 Avid Tech. 1992-1995; ENI, Italy 1987-1991;
 Institut Merieux, Lyon France 1979-1991;
 Genta, Inc. 1987-1993;
 Lederle Laboratories, 1988-1992;
 Schering Plough Research Institute 1988-1997;
 Searle 1993-1994;
 Syntro Corp. 1981-1986;
 Medigene AG (Formerly Neurovir) 1995-
 Co-Founder, consultant, member of the Board of Directors - Aviron Inc. 1992-2002.
 Consultant Nurel 2004-2005

E) Organization of Scientific Meetings

Convener, *The 1st International Workshop on Herpesviruses*, Cold Spring Harbor, N.Y., 1972.
 Lecturer, American Foundation for Microbiology, 1974-1975.
 Vice Chairman, Program Committee 3rd International Congress on Virology, Madrid, Spain, 1975.
 Member, International Organizing Committee, Sixth Pan American Cancer Cytology Congress, 1978.
 Co-Director, *Seminars on Advances in Cancer Biology* (Cancer Virology), Aspen, Colorado, 1977.
 Co-Chairman, *New York Academy of Sciences Conference on Genetic Variation*, York, N.Y., 1979.
 Co-Organizer, *International Workshop on Herpesviruses*, Bologna, Italy, 1981.
 Co-Organizer, *International Conference on Immunobiology and Prophylaxis of Herpesvirus Infections*, Ft. Lauderdale, Florida, 1983, 1985; Marco's Island 1987; Fukuoka, Japan, 1989; S'. Petersburg, 1991; 1995; Hokkaido, Japan, 1993; Tampa Fl, 1995. Mishima Japan, 1997, Il Ciocco, Pisa, 1999, Osaka Japan, 2001, Taormina Italy 2003, Osaka Japan, 2005, Orvieto Italy, 2007.
 Organizer, *Banbury Conference on Viral Latency*; Cold Spring Harbor, 1992.
 Co-Organizer, *First Japan Workshop on Herpesviruses*, Osaka Japan, 1992.
 Co-Organizer, *IRBM Symposium on Molecular Biology of Viral Latency*, Rome Italy, 1992.
 Co-Organizer, *UCLA Symposium on Molecular Biology of Human Viral Pathogens*, 1993.
 Organizer, Colloquium on *The effects of changes in human ecology and behavior on human infectious diseases*, National Academy of Sciences, September 1993.
 Co-Organizer, *Symposium on Current Frontiers in Virology*, Chicago Il, May 1994.
 Co-Organizer, *International Workshop on Herpesviruses*, DeKalb, Il, July, 1996.
 Co-Organizer, National Academy of Sciences colloquium on *Genetic Engineering of Viruses and of Virus Vectors*, Irvine, CA, June 1996
 Co-organizer, *Keystone Symposium on Molecular Approaches to Human Viral Vaccines*, Snowbird, Utah, 1999.

Fellowships:

Lederle Medical Faculty Award, 1960-1961; Scholar in Cancer Research of the American Cancer Society at

Institut Pasteur (with Andre Lwoff) Paris, France, 1961-1962; U.S.P.H.S. Career Development Award, 1963-1965; Faculty Research Associate, American Cancer Society, 1966-1971; Travelling Fellow, International Agency for Research Against Cancer (with Dr. George Klein, Karolinska Institutet, Stockholm, Sweden), 1970

Memberships in Scientific Societies:

American Association of Immunologists, American Society for Microbiology, American Society for Biochemistry and Molecular Biology, British Society for General Microbiology, American Society for Virology, International Society for Antiviral Research.

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Publications (Articles only; no abstracts)

1. Robinson, L.B., Wichelhausen, R.H. and Roizman, B. Contamination of human cell cultures by pleuropneumonia-like organisms. *Science* **124**: 1147-1148, 1956.
2. Mayer, M.M., Rapp, H.J., Roizman, B., Klein, S.W., Cowan, K.M., Lukens, D., Schwerdt, C.E., Schaffer, F.L. and Charney, L. The purification of poliomyelitis virus as studied by complement fixation. *J. Immunol.* **78**:435-455, 1957.
3. Chanock, R., Roizman, B. and Myers, R. Recovery from infants with respiratory illness of a virus related to chimpanzee coryza agent (CCA). I. Isolation, properties and characterization. *Am. J. Hyg.* **66**: 281-290, 1957.
4. Forsyth, P.J. and Roizman, B. Concentration and partial purification of adenovirus type 2 complement-fixing antigen. *Virology* **5**:393-394, 1958.
5. Roizman, B., Hopken, W. and Mayer, M.M. Immunochemical studies of poliovirus. II. Kinetics of the formation of infectious and non infectious type I poliovirus in three cell strains of human derivation. *J. Immunol.* **80**:386-395, 1958.
6. Roizman, B., Mayer, M.M. and Rapp, H.J. Immunochemical studies of poliovirus. III. Further studies on the immunologic and physical properties of poliovirus particles produced in tissue culture. *J. Immunol.* **81**:419-425, 1958.
7. Rowe, W.P., Hartley, J.W., Roizman, B. and Levy, H.B. Characterization of a factor formed in the course of adenovirus infection of tissue cultures causing detachment of cells from glass. *J. Exp. Med.* **108**:713-729, 1958.
8. Roizman, B., Mayer, M.M. and Roane, P.R., Jr. Immunochemical studies of poliovirus. IV. Alteration of the immunologic specificity of purified poliovirus by heat and ultraviolet light. *J. Immunol.* **82**:19- 25, 1959.
9. Hoggan, M.D. and Roizman, B. The effect of temperature of incubation on the formation and release of herpes simplex virus in infected FL cells. *Virology* **8**:508-524, 1959.
10. Hoggan, M.D. and Roizman, B. The isolation and properties of a variant of herpes simplex producing multinucleated giant cells in monolayer cultures in the presence of antibody. *Am. J. Hyg.* **70**:208- 219, 1959.
11. Roizman, B. Preparation of high potency poliovirus in FL cell cultures at room temperature. *Proc. Soc. Exp. Biol. and Med.* **101**:410-411, 1959.
12. Hoggan, M.D., Roizman, B. and Turner, T.B. The effect of temperature of incubation on the spread of herpes simplex virus in an immune environment in cell culture. *J. Immunol.* **84**:152-159, 1960.
13. Roizman, B., Hoggan, M.D. and Cornfield, J. Linear and parabolic estimates of the titers of herpes simplex from pock counts on the chorioallantoic membrane of embryonated eggs. *Virology* **11**:572-589, 1960.
14. Roizman, B. and Roane, P.R., Jr. Studies of polyoma virus. I. Hemagglutination as a measure of virus mass and antibody to the virus. *J. Immunol.* **85**:418-428, 1960.

15. Roizman, B. Roane, P.R., Jr and Robinson V.L. Studies of polyoma virus. II. Characteristics of tumor production, antibody response, and recovery of virus from tumors in the Syrian hamster. *J. Immunol.* **85**:429-438, 1960.
16. Roizman, B. and Turner, T.B. Influence of antibodies and temperature on the course of virus infection of cells in tissue culture. *Problems of Virology* **5**:548-560, 1960.
17. Roizman, B. and Roane, P.R., Jr. Polyoma virus in Syrian hamsters: a noncommunicable infection. *Nature* **188**:1134, 1960.
18. Romanul, F.C.A., Roizman, B. and Luttrell, C.N. Studies of polyoma virus pathology and distribution of tumors produced in Syrian hamsters following intracranial or subcutaneous inoculation. *Bull. Johns Hopkins Hosp.* **108**:1-15, 1961.
19. Hoggan, M.D., Roizman, B. and Roane, P.R., Jr. Further studies of variants of herpes simplex virus that produce syncytia or pock-like lesions in cell cultures. *Am. J. Epidemiology (ex Hyg.)* **73**:114-122, 1961.
20. Roizman, B. Virus infection of cells in mitosis. I. Observations on the recruitment on the site of virus antigen formation. *Virology* **13**: 387-401, 1961.
21. Roizman, B. and Schluederberg, A.E. Virus infection of cells in mitosis. II. Measles virus infection of mitotic HEP-2 cells. *Proc. Soc. Exp. Biol. and med.* **106**:320-323, 1961.
22. Roizman, B. and Roane, P.R., Jr. A physical difference between two strains of herpes simplex virus apparent on sedimentation in cesium chloride. *Virology* **15**:75-79, 1961.
23. O'Donovan, C. and Roizman, B. Differentiation of the process of cell infection with free herpes simplex virus from the recruitment of cells into virus-induced syncytia in x-rayed cell cultures. *Virology* **15**:374-376, 1961.
24. Schluederberg, A.E. and Roizman, B. Separation of multiple antigenic components of Measles virus by equilibrium sedimentation in cesium chloride. *Virology* **16**:80-83, 1962.
25. Roizman, B. and Roane, P.R., Jr. Studies on the determinant antigens of viable cells. I. A method, and its application in tissue culture studies, for enumeration of killed cells, based on the failure of virus multiplication following injury by cytotoxic antibody and complement. *J. Immunol.* **87**:714-727, 1961.
26. Prudovsky, S., Luttrell, C.N. and Roizman, B. Encephalomyelitis and pneumonitis in hamsters infected with newcastle disease virus by different routes. *Soc. Exp. Biol. and Med.* **107**:656-659, 1961.
27. Roizman, B. and Schluederberg, A.E. Virus infection of cells in mitosis. III. Cytology of mitotic and amitotic HEP-2 cells infected with measles virus. *J. Nat. Cancer Inst.* **28**:35-53, 1962.
28. Roizman, B. Polykaryocytosis induced by viruses. *Proc. Nat. Acad. Sci. (USA)* **48**:228-234, 1962.
29. Roizman, B. Effet de l'infection par mycobacterium tuberculosis sur la polykaryocytose induite par le virus de l'Herpes. *C. R. Acad. Sci. Paris.* **254**:1'50-1352, 1962.

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31. Roizman, B. The role of hormones in viral infections. I. Suppression of viral adsorption and penetration into cells treated with parathyroid hormone in vitro. Proc. Nat. Acad. Sci. (USA) **48**:795-803, 1962.
32. Roizman, B. The role of hormones in viral infections. II. Acceleration of viral adsorption and penetration into cells treated with thyroid hormone in vitro. Proc. Nat. Acad. Sci. (USA) **48**:973-977, 1962.
33. Roizman, B. Polykaryocytosis. Cold Spring Harbor Symp. on Quant. Biol. **27**:327-340, 1962.
34. Roizman, B. and Roane, P.R., Jr. Demonstration of a surface difference between virions of two strains of herpes simplex virus. Virology **19**:198-204, 1963.
35. Roizman, B. The programming of herpesvirus multiplication in doubly-infected and in puromycin-treated cells. Proc. Nat. Acad. Sci. (USA) **49**:165-171, 1963.
36. Roizman, B. Reversible inhibition of herpes simplex multiplication in HEP-2 cells with phenethyl alcohol. Virology **19**:580-582, 1963.
37. Roizman, B. Intracellular localization of viruses by fluorescence microscopy. Zeiss Werkzeitschrift **45**, 1963.
38. Roizman, B. The programming of Herpesvirus multiplication in mammalian cells. In: *Viruses, nucleic acids, and cancer*, Proc. of the 17th Annual Symp., M.D. Anderson Hospital and Tumor Institute, Baltimore, MD. William Wilkins and Co., pp. 205-223, 1963.
39. Roizman, B., Aurelian, L. and Roane, P.R., Jr. The multiplication of herpes simplex virus. I. The programming of viral DNA duplication in HEP-2 cells. Virology **21**:482-498, 1963.
40. Roane, P.R., Jr. and Roizman, B. Studies of the determinant antigens of viable cells. II. Demonstration of altered antigenic reactivity of HEP-2 cells infected with herpes simplex virus. Virology **22**:1-8, 1964.
41. Roizman, B. and Roane, P.R., Jr. Multiplication of herpes simplex virus. II. The relation between protein synthesis and the duplication of viral DNA in infected HEP-2 cells. Virology **22**:262-269, 1964.
42. Aurelian, L. and Roizman, B. The host range of herpes simplex virus. Interferon viral DNA, and antigen synthesis in abortive infection of dog kidney cells. Virology **22**:452-461, 1964.
43. Roane, P.R., Jr. and Roizman, B. Requirement for continuous protein synthesis for the development of resistance to UV light in HEP-2 cells infected with herpes simplex virus. Biochem. Biophys. Acta. **91**:168-170, 1964.
44. Roizman, B. and Aurelian, L. Abortive infection of canine cells by herpes simplex virus. I. Characterization of viral progeny from cooperative infection with multiply in canine cells. J. Mol. Biol. **11**:528-538, 1965.
45. Aurelian, L. and Roizman, B. Abortive infection of canine cells by herpes simplex virus. II. The alternative suppression of synthesis of interferon and viral constituents. J. Mol. Biol. **11**:539-548, 1965.

46. Borman, G.S. and Roizman, B. The inhibition of herpes simplex virus multiplication by nucleosides. *Biochem. Biophys. Acta.* **103**:50-59, 1965.
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49. Roizman, B. Extracellular pH and herpes simplex virus multiplication. *Proc. Soc. Exp. Biol. and Med.* **119**:1021-1023, 1965.
50. Roizman, B. Abortive infection of canine cells by herpes simplex virus. III. The interference of conditional lethal virus with an extended host range mutant. *Virology* **27**:113-117, 1965.
51. Roizman, B. Studies of an abortive infection of animal cells. In: *Proc. of the Int. Symposium on Comparative Leukemia Research* held in Stockholm, Sweden. Pergamon Press, Oxford, England, pp. 73-76, 1966.
52. Sydiskis, R.J. and Roizman, B. Polysomes and protein synthesis in cells infected with a DNA virus. *Science* **153**:76-78, 1966.
53. Roane, P.E., Jr. and Roizman, B. Differentiation of nuclear and cytoplasmic herpesvirus antigens in infected cells. *Virology* **29**:668-670, 1966.
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55. Spear, P.G. and Roizman, B. Buoyant density of herpes simplex virus in solutions of caesium chloride. *Nature* **214**:713-714, 1967.
56. Roizman, B., Spring, S.B. and Roane, P.R., Jr. Cellular compartmentalization of herpesvirus antigens during viral replication. *J. Virol.* **1**:181-192, 1967.
57. Morris, V.L. and Roizman, B. Localization of frog virus multiplication in chick embryo cells by immunofluorescence. *Proc. Soc. Exp. Biol. and Med.* **124**:507-510, 1967.
58. Spring, S.B. and Roizman, B. Herpes simplex virus products in productive and abortive infection. I. Stabilization with formaldehyde and preliminary analyses by isopycnic centrifugation in CsCl. *J. Virol.* **1**:295-301, 1967.
59. Roizman, B. and Spring, S.B. Alteration in immunologic specificity of cells infected with cytolytic viruses. *Proceedings of the Conference on Cross Reacting Antigens*. Edited by J.J. Trentin, The Williams and Wilkins Co., Baltimore, pp. 85-96, 1967.
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61. Roizman, B. and Spear, P.G. Preparation of herpes simplex virus of high titer. *J. Virol.* **2**:83-84, 1968.
62. Ejercito, P.M., Kieff, E.D. and Roizman, B. Characterization of herpes simplex virus strains differing in their effect on social behavior of infected cells. *J. Gen. Virol.* **2**:357-364, 1968.
63. Sydiskis, R.J. and Roizman, B. The sedimentation profiles of cytoplasmic polyribosomes in mammalian cells productively and abortively infected with herpes simplex virus. *Virology* **34**:562-565, 1968.
64. Spring, S.B., Roizman, B. and Schwartz, J. Herpes simplex virus products in productive and abortive infection. II. Electron microscopic and immunological evidence for failure of virus envelopment as a cause of abortive infection. *J. Virol.* **2**:384-392, 1968.
65. Spear, P.G. and Roizman, B. An improved procedure for H^3 and C^{14} counting in acrylamide gels with a nonaqueous scintillation system. *Anal. Biochem.* **26**:197-200, 1968.
66. Spear, P.G. and Roizman, B. The proteins specified by herpes simplex virus. I. Time of synthesis, transfer into nuclei, and properties of proteins made in productively infected cells. *Virology* **36**:545-555, 1968.
67. Wagner, E.K. and Roizman, B. Effect of the vinca alkaloids on RNA synthesis in human cells in vitro. *Science* **162**:569-570, 1968.
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69. Roizman, B. Herpesviruses. In: *The Biochemistry of Viruses*. Edited by H.B. Levy, Marcel Dekker, Inc., New York, pp. 415-482, 1969.
70. Roizman, B. Herpes simplex viruses and human cancer: Current status of the problem. *Symposium on Biology of Amphibian Viruses*. Springer-Verlag, New York, pp. 478-481, 1969.
71. Roizman, B. and Spear, P.G. Macromolecular biosynthesis in animal cells infected with cytolytic viruses. In: *Current Topics in Developmental Biology IV*. Edited by A. Monroy and A.A. Moscona, Academic Press, New York, pp. 79-108, 1969.
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75. Spring, S.B., Roizman, B. and Spear, P.G. Selective failure of protein synthesis in herpesvirus-infected cells deprived of arginine. *Virology* **38**:710-712, 1969.
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in abortively infected cells. *Symposium on Viral Defectiveness*. Fed. Proc. 28:1890-1898, 1969.

77. Wagner, E.K. and Roizman, B. RNA synthesis in cells infected with herpes simplex virus. II. Evidence that a class of viral mRNA is derived from a high molecular weight precursor synthesized in the nucleus. *Proc. Nat. Acad. Sci. (USA)* 64:626-633, 1969.

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Group Effort (Unsigned)

A WHO Meeting. Prevention and control of herpesvirus diseases. Part 1. Clinical and laboratory diagnosis and chemotherapy. Bulletin of the World Health Organization, 63:185-201, 1985.

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New Vaccine Development. Establishing of Priorities: Volume II. Diseases of importance in the Developing Countries. National Academy Press, Washington, D.C., 1986

Former Trainees and Associates

	Training	Graduate Education			
Name	Period	Degree	Year	Institution	Present position
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Predoctoral					
Laure Aurelian Baltimore Md	1962-65	Ph.D.	1966	Johns Hopkins	Prof. Depart. of Pharm., Univ. Maryland Med. School,
Steven Bachenheimer Carolina, Chapel Hill, N.C.	1967-72	Ph.D.	1972	U. of Chicago	Prof. Depart. of Microbiol. and Immunol. Univ. N.
William Batterson	1974-84	Ph.D.	1981	U. Of Chicago	Microbiol. U. Texas-Houston
Daniel Braun	1981-83	Ph.D.	1983	U. Of Chicago	Staff Physician, Elli Lily and Co. Indianapolis IN.
		M.D.	1979	U. Michigan	
Timothy Buchman St Louis.	1975-78	Ph.D.	1978	U. of Chicago	Prof. Surg., Dir. Critical Care & Burn unit. Wash. Univ.
			M.D.	1980 U. of Chivago	
Kara Carter	1990-96	Ph.D.	1996	U. of Chicago	Associate Director, Genzyme Corp.
Chang, Y-E	1991-96	Ph.D.	1996	U. of Chicago	Lawyer
Ana Chee	1997-03	Ph.D.	2003	U. of Chicago	Research Associate Northwestern Univ. Med. School.
Joanie Chou	1983-86	Ph.D.	1986	U. of Chicago	President, Akure Inc. Chicago IL.
Lizette Durand	2002-07	Ph.D.	2007	U. of Chicago	Research Associate, Univ of Chicago
Randall Fawl	1987-93	Ph.D.	1993	U. of Chicago	Wistar Inst., Univ of Penna.
Niza Frenkel	1969-72	Ph.D.	1972	U. of Chicago	Prof. University of Tel Aviv, Israel
Deidre Furlong	1978-81	Ph.D.	1975	U. of Chicago	Research Assoc. Harvard Med. School, Boston, Mass.
Veronica Galvan	1994-99	Ph.D.	1999	U. Chicago	Postdoc. Buck Center for Aging, CA
Wade Gibson Baltimore Md.	1967-72	Ph.D.	1973	U. of Chicago	Professor, Dept. of Pharm. Johns Hopkins Med. School.
Ryan Hagglund	1999-03	Ph.D.	2003	U. of Chicago	UC Law School
David Hoggan	1956-59	Sc.D.	1959	Johns Hopkins	Staff Scientist, NIAID
Jeff Hubenthal-Voss	1983-88	Ph.D.	1988	U. Washington	Senior Scientist, BASF Bioresearch, Cambridge, MA.
Paola Jones	1972-79	Ph.D.	1979	U. of Chicago	Research Assoc. Ben May Institute, Univ. of Chicago
Elliott Kieff Harvard Med. School	1966-71	Ph.D.	1971	U. of Chicago	Prof., Dep. of Medicine and Microb. & Mol. Gen., J. Hopkins
			M.D.	1966	
Thomas Kristie	1981-86	Ph.D.	1986	U. of Chicago	Research Scientist (tenured) NIAID
Michael Lagunoff	1989-95	Ph.D.	1995	U. of Chicago	Assoc. Prof. University of Washington (WA)
Yu Liang	1999-05	Ph.D.	2005	U. Chicago.	Post Doctoral Trainee, NIH.
Fenyong Liu	1988-92	Ph.D.	1993	U. of Chicago	Prof. UC Berkeley
Richard Longnecker II.	1982-88	Ph.D.	1987	U. of Chicago	Prof. Microbiology Northwestern Med. School. Chicago
Susan Mackem	1976-82	Ph.D.	1982	U. of Chicago	Senior Clinical Investigator, Laboratory of

Pathology, NCI,			M.D. 1984 Johns Hopkins	
Nancy Michael	1986-93	Ph.D.	1993 U. of Chicago	Res. Associate, University of Chicago (Deceased).
Louise McCormick	1989-96	Ph.D.	1996 U. of Chicago	Res. Assoc. Asist Prof. Emory Med. School
Vincent Morris	1966-69	Ph.D.	1969 U. of Chicago	Prof., Univ. W. Ontario, Canada
Lawrence Morse	1975-77	Ph.D.	1978 U. of Chicago	Prof. of Ophthalmology, U.C. California, Davis.
	M.D.1982	UCLA		
Joashua Munger	1996-01	Ph.D.	2001 U. of Chicago	Assistant Professor, Univ. of Rochester
William Ogle	1992-98	Ph.D.	1998 U. of Chicago	Assist. Prof. University of Florida. Gainesville.
Phillip Pellett	1981-85	Ph.D.	1985 U. of Chicago	Prof., Wayne State Med. School
Kim Poffenberger	1979-84	Ph.D.	1984 U. of Chicago	Staff Scientist, Fed. Drug Administration
Glenn Randall	1993-99	Ph.D.	1999 U. of Chicago	Assist. Professor, University of Chicago.
Charles Van Sant	1994-00	Ph.D.	2000 U. of Chicago	Scientist, Abbott Laboratories
Amy E. Sears	1978-85	Ph.D.	1985 U. of Chicago	Assoc. Member, Tampa Bay Rsearch Inst. St Petersburg.
FL				
Jerome ScI.wartz	1966-69	Ph.D.	1969 U. of Chicago	Vice Pres/Med Direct., Applied Clinical
Communications, Inc.	Parsippany, NJ.			
Sandra Silver	1980-85	Ph.D.	1985 U. of Chicago	Senior Scientist, Repligen Corp.
Benjamin Smith-Donald	2001-06	Ph.D.	2006 U. of Chicago	MSTP Program
David, Spector,	1988-91	Ph.D.	1991 U. of Chicago	Oncology practice, Quad city Iowa
			M.D., 1993 U. of Chicago.	
Patricia G. Spear	1965-69	Ph.D.	1969 U. of Chicago	Prof. & Former Chair, Dept of Microbiol., Northwestern
Med. School, Chicago				
Susan Spring	1964-69	Ph.D.	1969 U. of Chicago	Program Director, NCI
Samuel Wadsworth	1970-74	Ph.D.	1974 U. of Chicago	Vice President, Molecular Biology, Genzyme Corp.

Postdoctoral

Mathias Ackermann	1983-85	DVM	1982 U. Zurich,	Professor, Swiss Inst. Virol. Zurich Switzerland
Minas Arsenakis	1985-87	Sc.D.	1985 LaTrobe U.	Professor, Dept. of Biology, U. of Thessaloniki, Greece
			Australia	
Joel Baines,	1989-93	Ph.D.	1989 Cornell Univ.	Professor, Microbiol., Cornell Univ. Ithaca N.Y
			DVM	
John Blaho	1989-94	Ph.D.	1989 U. of Alabama	Head, Virology Division, Medican Diagnostic Lab. Hamilton NJ.
Renato Brandimarti	1993-99	Ph.D.	1993 U. Bologna	Assist. Professor, Univ. of Bologna Italy.
Renato Bruni	1993-98	Ph.D.	1993 U. of Zurich, Sw.	Scientist, Tribeca, N.Y.
Kevin Cassidy	1995-98	M.D.		Assist Prof. of Pediatrics, Univ of Ala. Birmingham
Enzo Cassai	1971-72	Ph.D.	1970 U. of Ferrara	Prof. Microbiol. Univ. of Ferrara, Italy
Anthony Conley	1977-80	Ph.D.	1977 Michigan State	Senior Scientist, Merck, PA

Esclatine, Audrey	2000-03	Ph.D.	Univ of Paris,	Assist Prof. Univ of Paris.
Fineschi, Beatrice.	1997-01	Ph.D.	1997 Univ. of Chicago	Instructor, Univ. of Chicago.
Gary Hayward	1974-76	Ph.D.	1972 Auckland, NZ	Prof. Pharmacol, Med. School. Johns Hopkins
Bin He	1994-98	Ph.D.	1993 Purdue Univ.	Assoc. Prof. Univ. of Ill Med. School Chicago IL
Carolyn Herz	1981-82	Ph.D.	1981 Cornell U.	Res. Assoc. Walther Oncology Center, Ind.
Robert Honess	1972-75	Ph.D.	1972 Birmingham,	Head, Div. Virol. NIMR, MRC, London, UK (Deceased)
Kazuhiko Igarashi	1991-93	Ph.D.	1991 Tohoku Univ.	Prof. Depart. of Biochem. Univ. of Hiroshima School of Med. Japan
Yasushi Kawaguchi	1995-97	Ph.D.	1994 U. of Tokyo	Assoc. Prof. Tokyo University, Japan
		DVM	1991 U. of Tokyo	
Robert Jacob	1976-79	Ph.D.	1975 Syracuse U.	Assoc. Prof. Microbiol., Univ. of Kentucky Med. School, Lexington, KY.
Bernard Jacquemont	1972-74	Ph.D.	1971 U. Claude	Sr. Sci. INSERM, Lyon, Bernard-Lyon France
Frank J. Jenkins	1984-87	Ph.D.	1984 Penn State	Assoc. Prof. Univ of Pittsburg Med.
John Keller	1968-70	Ph.D.	1966 M.I.T.	Prof. Biochemistry Univ. of Health Sci., North Chicago IL.
Robert King	1990-92	Ph.D.	1990 Purdue Univ.	Research Director, Dow Chemical.
Marilyn Kozak	1972-74	Ph.D.	1972 Johns Hopkins	Prof. Biochem., Rutgers University
David Knipe	1976-79	Ph.D.	1976 M.I.T.	Prof. Microbiology & Mol. Genetics, Harvard Med. Sch.
Rosario Leopardi	1994-98	Ph.D.	1994 Univ. of Turku Finland	
		P.D.	1990 Catania Italy	Assist. Prof. Karolinska Univ. Sweden
Sandra LeMaster	1979-80	Ph.D.	1978 U. of Penn.	Research Assoc. Microbiology, U. of Cincinnati
Markovitz, Nancy	1994-00	Ph.D.	1994 U. of Texas Austin	Staff Scientist FDA
P. Mavromara-Nazos	1979-84	Ph.D.	1984 U. of Michigan	Senior Member, Pasteur Inst., Athens, Greece
Robert Millette	1973-75	Ph.D.	1964 Cal. Tech	Prof. of Biology, U. of Oregon
Edward Mocarski	1979-83	Ph.D.	1979 U. of Iowa	Professor, Emory Univ Atlanta GA.
Feresse Ng	1991-97	Ph.D.	1991 U. of Iowa	Res. Scientist, Abbott Labs
Leonore Pereira	1974-77	Ph.D.	1974 U. of Frankfurt	Prof. Univ of California San Francisco.
Sofia Perazzo	1997-99	M.D.	1997 U. of Buenos Aires	Resident, U. of Buenos Aires
Leonard Post	1979-81	Ph.D.	1979 U. of Wisc.	Vice President for Research, Onyx Inc. California.
Frances C. Purves	1988-93	Ph.D.	1986 U. of Glasgow,	Res. Scientist Tularek Inc. S. San Francisco, CA.
Roller J. Roller	1989-94	Ph.D.	1989 Harvard	Prof., Med. Microbiology, Univ. of Iowa.
M. G. Romanelli	1988-90	Ph.D.	1985 U. of Ferrara	Assoc. Prof. of Genetics, University of Verona. Italy
William Ruyechan	1976-78	Ph.D.	1975 U. Ill-Urbana	Prof. Biochem., University of N.Y. at Buffalo
Sciortino, M.T.	1997-01	Ph.D.	1997 U. of Messina	Assist. Prof. U. of Messina, Italy.
Saul Silverstein	1971-74	Ph.D.	1971 U. of Florida	Prof. & Chair, Microbiol., P&S, Columbia Univ.
Mikiko Suzuki	2000-04	DDS	1994 Tokyo Med Univ.	Assist. Prof. Toyama Med. & Pharm Univ. Toyama Japan
		Ph.D.	1998 Tokyo Med Univ.	
Robert Sydiskis	1965-67	Ph.D.	1965 Northwestern	Prof. of Microbiology, Univ. Maryland Med. School.
Enrique Tabares	1977	Ph.D.	1972 U. of Madrid	Prof. Microbiology, Med. Sch. U. Autonoma, Madrid

Mauro Tognon	1977-80	Ph.D.	1975	U. of Ferrara	Prof. Applied Biol. Univ. of Ferrara, Italy
Trgovcic Joanne.	1998-02	Ph.D.	1994	U. N. Carolina	Assist. Prof. of Pathology, Ohio State Univ.
Edward K. Wagner	1967-70	Ph.D.	1967	M.I.T.	Prof. of Molecular Biology, UC – Irvine (Deceased)
Patricia L. Ward	1985-99	Ph.D.	1985	U. of Chicago	Staff member, Museum of Science and Industry, Chicago
Kent Wilcox	1975-79	Ph.D.	1974	Johns Hopkins	Assoc. Prof. of Microbiology, Univ. Wisc. Milwaukee
Hanns Wolf	1975-77	Ph.D.	1974	U. Erlangen,	Prof. and Dir. Inst. for Med. Microbiology, Regensburg Univ., Germany
Manfred Wolff	1973-76	Ph.D.	1973	U. Bonn, WG	Prof. Inst. für Virologie und Microbiologie, Universität Witten/Herdecke
Guo-Jie Ye	1996-01	Ph.D.	1994	China	Associate Director, Applied Genetic Technologies Corp.
Gainesville FL.					

Visiting Scientists (Past)

Michael Fenwick, Ph.D.	Sabbatical	Reader, Univ. Oxford, England
G. Campadelli-Fiume, Ph.D.	Sabbatical	Prof. of Virol. Univ. of Bologna Italy
Ian Halliburton, Ph.D.	Sabbatical	Reader, Department of Microbiology, University of Leeds, UK
Tao Hung M.D.	Sabbatical	Professor, Chinese Academy of Preventive Medicine, Beijing.
Veijo Hukkannen	Sabbatical	Univ of Turku, Finland
Alex Kohn, Ph.D.	Sabbatical	Professor, Univ. of Tel-Aviv Med. School
Augustine Hajime Koyama, D.Sc.	Sabbatical	Prof. of Virology, Wakayama Medical University, Wakayama, Japan
Bodil Norrild, Ph.D.	Sabbatical	Associate. Prof. of Microbiology Univ of Copenhagen Denmark
Filatov, Felix, Ph.D.	Visiting	Scientist; Member, Ivanovsky Institute for Virology, Russian (USSR) Academy of Sciences, Moscow.
Benito Reguero M.D.	Sabbatical	Professor and Chairman, Department of Microbiology, the University of Santiago de
Campostela, Spain.		(Sabbatical leave 1/93 to 12/93).
Markert, James M.D.	Visiting	Assist Prof. of Neurosurgery, Univ of Alabama 9/95-4/96
Alessandra Stefan, Sc.D.	Visiting	Scientist, University of Bologna, Italy; Fall 1997.
Yugi Isegawa M.D.	Sabbatical	Assist. Prof. Microbiology, Univ of Osaka Japan, Jan-Nov 1997
Wang, Janwei,	Visiting	Scientist, Associate Professor, Institute for Virology Beijing 8-11/2002
Special Fellows:		
Bradford S. McGwire		Howard Hughes Medical Student Fellow 1989-1990